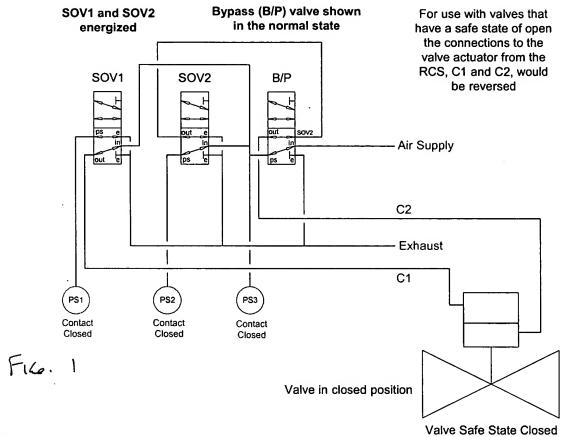
TITLE: VARIABLE

VARIABLE FUNCTION VOTING SOLENOID-OPERATED VALVE APPARATUS HAVING AIR-TO-MOVE VALVE ACTUATORS AND

TESTING METHOD THEREFOR

INVENTOR(S): BRYAN A. ZACHARY FILING DATE: APRIL 20, 2004

## Double Acting Energize To Trip



F16. 2

| Bypass NOT<br>Active                           | Pressure Switch 1 Contact Status | Pressure Switch 2<br>Contact Status | Pressure Switch 3 Contact Status |
|--|----------------------------------|-------------------------------------|----------------------------------|
| SOV1 AND<br>SOV2 Energized                     | Closed                           | Closed                              | Closed                           |
| SOV1 AND<br>SOV2 De-<br>energized              | Open                             | Open .                              | Closed                           |
| SOV1 De-<br>energized AND<br>SOV2 Energized    | Open .                           | Closed                              | Closed                           |
| SOV1 Energized<br>AND<br>SOV2 De-<br>energized | Closed                           | Open                                | Closed                           |
| Bypass Active                                  | Closed                           | Open                                | Open                             |

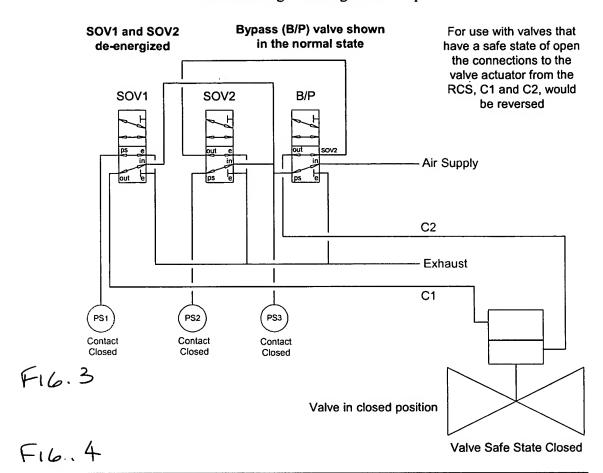
TITLE:

VARIABLE FUNCTION VOTING SOLENOID-OPERATED VALVE APPARATUS HAVING AIR-TO-MOVE VALVE ACTUATORS AND

TESTING METHOD THEREFOR INVENTOR(S): BRYAN A. ZACHARY

FILING DATE: APRIL 20, 2004

## Double Acting De-energized to Trip



| Bypass NOT<br>Active                           | Pressure Switch 1<br>Contact Status | Pressure Switch 2<br>Contact Status | Pressure Switch 3<br>Contact Status |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| SOV1 AND<br>SOV2 Energized                     | Open                                | Open                                | Closed                              |
| SOV1 AND<br>SOV2 De-<br>energized              | Closed                              | Closed                              | Closed                              |
| SOV1 De-<br>energized AND<br>SOV2 Energized    | Closed                              | Open                                | Closed                              |
| SOV1 Energized<br>AND<br>SOV2 De-<br>energized | Open                                | Closed                              | Closed                              |
| Bypass Active                                  | Closed                              | Open                                | Open                                |